December 1971 - January 1972

EMO

British Columbia Flash Floods

Emergency Planning in Industry

Industrial Emergency Self-Help

NATO Civil Defence Reports

- *France*
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Contents

British Columbia Flash Floods 1
B.C. Health Services

Emergency Planning in Industry 4
A. F. Wigglesworth

Organizing for Self-Help in Emergencies 5
Virgil L. Couch

NATO Civil Defence Committee—1971

- French Military—Civilian Cooperation 11
  J. Perreau-Pradier
- Shelter Policy in the Netherlands 15
  P. J. M. Ruyters
- U.S. Civil Defense Takes a New Direction 20
  Hon. John E. Davis

The EMO NATIONAL DIGEST publishes six editions annually to provide current information on a broad range of subjects dealing with civil emergency planning. The magazine is published in English and French and may be obtained by writing to the Canada Emergency Measures Organization, Ottawa, Ont. K1A OK2.

In addition to publishing articles which reflect Canadian Government policy the Digest may also publish articles by private individuals on subjects of current interest to the emergency measures programme. The views of these contributors are not necessarily subscribed to by the Federal Government.

Editor: A. M. STIRTON

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BRITISH COLUMBIA FLASH FLOODS

by

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In the West Kootenays of British Columbia, flooding is a recurring hazard. In 1869, 1911, 1948, 1961, and 1967, forewarned of threatening floods, the authorities introduced control measures in advance and kept flood damage to the minimum. When flash floods inundated the cities of Trail and Grand Forks in 1969 and 1971 respectively, there was no warning and flood damage was considerable. Nevertheless, the lessons of Trail in 1969 became the practice for Grand Forks in 1971.

TRAIL — 1969

On April 23, disaster struck the busy city of Trail. Some 12,000 inhabitants of this smelter city on the banks of the Columbia River will long remember that awesome day—the day of Trail's flash flood (Fig. 1). Many of the 110 homes and 53 business premises affected by flooding required extensive repairs or renovations. Seventy-seven automobiles were damaged, 26 beyond repair. One 17-suite, three storey apartment building undermined by flood water, collapsed, totally demolished but fortunately, it had been vacated. One-and-a-half miles of city roads were torn up. The total repair bill was $2,400,000.

Trail's Civil Defence Disaster Plan

Trail's disaster plan included flood control measures but flash floods, by their rapid onset, pose different technical problems requiring immediate solution. The mayor and the co-ordinator of flood control adjusted emergency plans to meet these unexpected needs and overcame initial confusion with the help of city officials, Department of Highways engineers, civil defence workers, and volunteers.

Police, Fire, Rescue, Transportation

Officers of the R.C.M.P. and Fire Department rescued people from flooded homes. Owners of trucks with high road clearance volunteered to transport flood victims from the reception centre to temporary homes and shelters.

Communications

Within three hours telephone services were overloaded. Help came from an unexpected source. Members of the Trail Radio Emergency Communications Club (R-E-Com Radio Club), operating under the authority of the Federal Department of Communications, filled the gap. The club established a main base station in Trail City Hall and during the critical period 28 mobile and two base stations, one in the R.C.M.P. office and the one in City Hall, worked round the clock on 12-hour shifts. Members of the club, city officials and officers of the R.C.M.P. also operated four walkie-talkie radios.

Emergency Mass Feeding

The day after the flood April 24, only one of 12 restaurants in Trail could open for business. To provide

Figure 1: Downtown Trail, an hour after flood started. (Courtesy Trail Daily Times)

coffee, soup, and sandwiches for flood workers and displaced residents, three representatives of the Department of Social Welfare, assisted by several hundred volunteers from church groups, St. John Ambulance, and the regional college, set up mass feeding stations in the basement of a local church and in a large recreation centre. To ensure satisfactory sanitation and safe food-handling, public health inspectors regularly inspected these emergency feeding locations.

"Operation Cleanup"

Cleanup operations, a difficult and dirty job, lasted two weeks. Pollution of flood waters by raw sewage made disinfection procedures mandatory. After mud and debris had been removed, three disinfecting teams moved into homes and business premises and supervised by a public health inspector, the teams washed floors, walls, and ceilings with quaternary ammonium disinfectant. High test hypochlorite solution in watering cans was used to disinfect basement floors. Residents disinfected automobiles and household upholstery with double-strength phenol after washing with a detergent and rinsing with clean water.

Drinking Water Supply

For safety, the condition of the water supplies was reviewed. In the water mains, pressure levels were adequate, no breaks in the lines were evident, and chlorine residuals proved satisfactory. Residents were informed that the City water supply had not been affected by the flood and was safe to drink.

Foods Affected by Flood Waters

To decide which foods must be condemned and which could be eaten safely public health inspectors examined foodstuffs for evidence of contamination by flood waters and foods declared unsuitable for human consumption were destroyed. As flood waters were heavily contaminated by raw sewage, no compromise was made for exposed commercial foodstuffs including soft drinks and alcoholic beverages. To check thousands of cans of food or bottled beverages closely for "leakers" and "swells" is not practical yet even in the absence of gross defects, the safety of such food for human consumption could not be guaranteed. Householders were informed of the potential hazards of eating exposed foodstuffs and encouraged to discard food suspected of contamination. These instructions included:

- *Canned foods* should be closely checked for "leakers" and "swells" with particular attention being paid to seams and joints for signs of corrosion. Home preserved fruits in jars and sealers showing evidence of contamination around the tops should be discarded. Although many of these jars have appeared safe, there was a danger which might not be manifest due to gross physical changes in the contents and residents were advised to eat these foods only after thorough cooking.
- *Soft foods and wrapped foods*, including meats and dairy products should be discarded if there was evidence of contact with flood water.
- *Field crop products* were considered safe to eat after thorough cooking but where there was any doubt, it should be discarded.

Typhoid Immunization

As typhoid or paratyphoid fever are no longer endemic in this area, mass immunization was not recommended.

In disaster situations, mass immunization against typhoid fever is probably neither necessary nor desirable in Canada. When the public must be encouraged to maintain good personal hygiene and safe sanitary practices to prevent outbreaks of endemic disease such as infectious hepatitis and salmonellosis, mass immunization would merely give a false sense of security. Basic sanitation practices, as described in the Department of National Health and Welfare pamphlet "Rural Waters, 1969" and the manual "Environmental Health in Disaster, 1967", are effective in preventing the spread of disease.

Psychological Aspects

Apart from hazards to life and limb, bereavement, and loss of home and valued possessions, create anxiety, fatigue, and depression. Reassurance of the public on progress of control and relief operations eases troubled minds and prevents panic. So often, rumours result from false and inadequate communication; factual information must therefore be rapid and direct, in the correct place, at the correct time. After staggering and bewildering disaster, victims need to talk, to get angry, to "ventilate". People appreciate a cup of hot coffee or a blanket for satisfaction of the psychological need to feel cared for.

Public Information

Throughout, radio and press kept the public informed about emergency sanitation and personal hygiene. Handouts on disinfection procedures of premises, clothing furniture, foodstuffs, and eating utensils were distributed for public use from local businesses and from City Hall. Health Unit office staff used handouts to answer telephone inquiries, thereby saving time or senior personnel for more complicated tasks. Such material must be available in areas subject to flooding. Advice must be simple and practical as few persons are sufficiently calm, under stress, to convert parts per million or percentages into common drops or cups.

GRAND FORKS — 1971

During the night of Thursday, May 13, 1971, residents of Grand Forks faced an emergency. The Kettle River, tributary of the mighty Columbia, had suddenly overflowed its banks (Fig. 2). Two days of steady rain swelled the excessive run-off as high air temperatures melted deep snowpacks in the surrounding mountains.

Figure 2: Aerial view of Grand Forks districts showing flooding of Kettle River.
(Courtesy D & L Portrait Studio, Grand Forks, B.C.)

At 0830 on Friday, May 14, the Public Health Nurse and the City Administrator of Grand Forks phoned the Director of the West Kootenay Health Unit in Trail for urgent advice on preventing and controlling the public health risks of the flooding. Within 2½ hours two senior members of the health unit, dispatched to the disaster area from Trail, set to work in Grand Forks. Already, work crews were deployed, trucks and other equipment were in use; dyking was in progress; sandbag walls were being built.

Some 25 houses had flooded basements; in a few, the first floor was awash. Fortunately, there was no immediate threat to human life. Then, the water level in the Kettle River began to rise. A large part of Grand Forks was in jeopardy. In the nick of time, the air temperature dropped, the flood abated, and the water receded. But already, the damage was estimated at $100,000.

The experience gained at Trail in 1969 enabled health workers to take quick and decisive action. Information regarding cleanup procedures and disinfection was available at the Health Unit. The city administrator of Grand Forks, with its large Doukhobor population, had this material mimeographed in English and Russian and distributed to flood victims. The city drinking water supply was checked and found safe. Shallow wells in one rural district were considered potentially polluted by flood water entering from the surface or from the ground water table. The users were therefore instructed to boil or disinfect drinking water. Through the local radio station CKGF, health officials kept the public informed on the progress of control operations and on safe emergency sanitation practices.

While it took weeks to repair flood damage to homes and roads, life went on as usual for most citizens in Grand Forks the day after the flood.

Epilogue

Now intimately involved in disaster planning, these cities upgrade their emergency measures programs as necessary and hold regular practice runs.▲

EMERGENCY PLANNING IN INDUSTRY

Heavy Water and EMO

By

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Canada Emergency Measures Organization

The Canadian General Electric Company Plant at Point Tupper, Nova Scotia is the only producing Heavy Water Plant in Canada and began production on 30 September, 1970.

EMO's Role

Canada EMO participated in the early stages of emergency planning for this plant. This demonstrates a role which is becoming more widely accepted for our organization to become involved in industrial safety planning by:

1. getting together all departments and people concerned to discuss a common problem.
2. establishing guidelines for planning; and,
3. defining responsibilities.

Action

Let's go back in time to October 30, 1968. CGE was required to satisfy the Atomic Energy Control Board and the Federal and Provincial Departments of Health "With respect to all matters related to safety and public hazard," including community safety which was a primary consideration in the plant's design, location and operations. At that time a meeting, chaired by the writer in the official capacity of Canada Emergency Measures Organization Regional Director, was held to discuss emergency plans and procedures for the CGE heavy water plant.

Represented at the meeting were: CGE Construction Co-ordinator and Manager, Process Engineering; Public Health Engineering, National Health and Welfare; The Director Medical Services Atlantic Region, NH&W; two officers of HQ Atlantic Region*, Canadian Armed Forces; the Director and Assistant Director of EMO (N.S.); the Acting Director of Environmental Health, Department of Public Health, Province of Nova Scotia; and Canada EMO.

Background papers, "What is Heavy Water and How it is Used" and "Hydrogen Sulphide", were distributed by the Chairman and the Provincial EMO (N.S.) Director. Accepting its role in providing safety for their employees and the community, the CGE company was seeking assistance in planning for an in-plant disaster or one of a magnitude which might cause EMO and possibly the Canadian Forces to get involved. Topics discussed were:—How toxic is hydrogen sulphide?; How great is the hazard?; How far might the hazard extend?; What actually could happen?; Who would need to know?

*Now Maritime Command.

The Hazard

Does the production of heavy water pose any hazards to health and public safety?

The Point Tupper plant is the first to make heavy water in Canada.** It was engineered by CGE to separate deuterium from ordinary water. Hydrogen sulphide gas is used as a transfer agent in the isotope separation process and is not consumed, but remains confined in the pressure vessels and pipes of the system.

Hydrogen sulphide is a colourless gas, slightly heavier than air. In low concentrations it has a strong smell of rotten eggs. In high concentrations it is odorless and toxic. The toxic effects depend upon the concentration and the duration of the exposure. If a person is overcome, recovery without lasting effects is normal, if artificial respiration and normal air are quickly provided.

If the gas is accidentally released into the air, it drifts with the wind and quickly disperses, like the smoke from a bonfire or from a factory chimney. Dilution of hydrogen sulphide is rapid downwind and even more rapid crosswind. Under high wind conditions typical of the Canso Strait Area, dispersal of escaping gas would be rapid; likely in a matter of minutes.

The Plan

A monitoring system has been provided for the purpose of detecting and signalling the escape of gas. All critical valves in the plant are motorized and can be operated remotely from the control room to isolate the system from which the gas is escaping.

On-Site

Plant operators have instructions to ignite any escaping gas and burn it off at the point of release—if they are unable to immediately terminate the release by closing valves.

Personnel in the plant are issued with breathing equipment. They are trained in resuscitation techniques, and they work in pairs known as "buddy teams".

**This plant is not to be confused with the Deuterium of Canada plant at Glace Bay, N.S., which is not yet in production.

(*Continued on page 10*) **EMERGENCY...**

ORGANIZING FOR SELF-HELP IN EMERGENCIES*

By
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Every industrial firm, regardless of size, should establish an internal organization that will provide for the protection of life and property in emergencies.

Practically every large industrial plant has existing emergency groups which can provide certain services. In event of natural disaster, major industrial accident, civil disturbance, bomb threat, sabotage, or nuclear attack, the self-help organization may well be the first line of defense for the lives of employees, the preservation of the corporate structure, and the protection of plants and other property.

Basic principles in emergency preparedness are that *plans be made in advance*, and that plans be based on the principle of *self-help*. Every person, every family, and every plant or facility should be able to help themselves in an emergency.

In case of a communitywide emergency, sufficient help cannot be counted on from other industrial organizations or local government departments such as police, fire and rescue. These departments probably will be occupied with other problems arising from the disaster.

Self-help capability can be achieved by organizing and training groups of employees for emergency services; or by enlarging the existing emergency organization to manage major disaster conditions.

The emergency groups often include such service as: guard and police; fire, medical; rescue; welfare, and engineering. To be prepared for the threat of nuclear attack, these existing protective groups should not only be enlarged by recruitment and training of additional employees, but supplemented by additional services such as: warning and communications; warden; shelter management; radiological monitoring; transportation, and decontamination.

In addition: provision should be made for alternate company emergency headquarters; plans should be made for continuity of management, and vital records and documents should be protected.

Emergency services should be geared to the size and complexity of the facility involved, and to the problems that are likely to arise. In most cases, duties can be assigned to the regular line organization. This not only minimizes cost, but contributes to efficiency of operation because line employees have practical knowlegde of the facility.

Direction and coordination

As a first step, an emergency coordinator should be appointed at the corporate level in each plant or facility. It is his responsibility to develop the self-help organization and supervise recruitment and training of personel. In large organizations where problems are complex, full-time service may be required; in smaller facilities, this duty may be assigned as an additional responsibility.

The coordinator should prepare appropriate policy and administrative directives for establishment of the self-help organization. He should also maintain close liaison with local civil defense officials and, through them, with appropriate departments of local government and with the emergency coordinators of other plants in the community.

The emergency coordinator and certain key employees and supervisors should be trained in various disaster-control skills so that management can rely on them. *Every employee* should have enough training to know how to protect himself and those around him in case of emergency at the workplace. The coordinator should arrange for this training with the local Civil Defense Director. He should see that basic elements of the company emergency operations plan are put in writing and kept up to date to reflect changes in personnel, operations, facilities or equipment.

The company emergency coordinator's efforts will be strengthened if an *advisory committee* is appointed to guide and assist him. Committee members should represent key departments, employee unions and organizations. Simultaneously, the company should encourage cooperative efforts among company executives *and* between management and employees.

Management training

In organizing for self-help in emergencies it is vital that emergency coordinators and advisory committees be thoroughly informed and trained in what to do and how to do it, in what other companies are doing, and in the emergency procedures established by law which become effective upon declaration of a civil defense emergency. They should be totally prepared for natural disasters such as hurricanes, tornadoes, floods, earthquakes and blizzards; major industrial accidents such as explosions, fires, and chemical leakage; radiological incidents, sabotage, civil disturbances, bomb threats, and nuclear attack.

* This is the third article of a series to be reprinted by the Digest. Published with the permission of the Environmental Control and Safety Management magazine previous articles appeared in August-September 1971 and October-November 1971 editions.

A special OCD Staff College Course in Industrial CD Management at Battle Creek, Michigan, provides comprehensive training. Tuition and living quarters are free, as are publications which comprise a complete private library on all aspects of emergency and disaster management. Over 3,000 industrial and business executives and government officials are graduates of this 5-day course. Professional industrial emergency and disaster planners serve as visiting instructors and guest lecturers. They describe what they are doing in their respective companies, the problems involved, how they have solved such problems, and how total emergency preparedness has paid off.

Complete information is available from local government CD Directors; from the OCD Staff College, Federal Center, Battle Creek, Michigan 49016; or from Industrial Participation, Office of Civil Defense, The Pentagon, Washington, D.C. 20310. Ask for Industrial *CD Management Staff College Course Announcement*, FG-F-3.10; and *Civil Defense Training for Business and Industry*, FG-F-3.46, or phone OCD in The Pentagon (202) 697-8372.

Guard and police service

The plant guard chief, security chief, police chief—whatever his title—should be familiar with all parts of the plant, all known hazards, and the plant's self-help organization. During emergencies, he should be available at all times to coordinate the company's police services with other plant protective groups and with the local law-enforcement agencies.

If the plant is large, a permanent guard force probably is assigned. In a smaller plant, however, the guard force might be comprised of selected employees trained for guard duty during times of emergency.

Where it is necessary to establish an auxiliary guard force, it should be made an integral part of the parent group. Auxiliary guards should receive instructions from the regular guard personnel and, as a rule, should receive training in sabotage prevention.

The head of security services should be directly responsible to the plant manager or someone designated by him (e.g., emergency coordinator).

Related courses and publications available through local police departments include "Law and Order Training for Civil Defense Emergencies." Ask for the two student manuals and two instructors' guides SM-10.1A-B, and IG-10. 1A-B.

Warden service

Wardens, usually supervisory personnel, are appointed in some organizations. Their functions may include assistance in traffic control, particularly in the movement of people to shelter areas or in the evacuation of buildings, and in helping to maintain order. In office installations where no plant facilities are involved, the wardens might be the primary emergency organization.

In the mass movement of employees, wardens should assure that their fellow workers proceed in a fast, orderly manner to their assigned areas. They should identify and periodically inspect the routes that workers will take to reach assigned areas. During movement of employees, wardens should be stationed at exits from all major working areas, as well as at the top and bottom of all stairways, ramps, and elevators. They should have a thorough understanding of the plant's operations and emergency procedures.

Fire service

Most operating plants have a fire-fighting force; others depend on community fire departments. Under conditions of nuclear attack, it is doubtful that community services would be available. Management should study the present situation with a view to providing its own organized fire protection system. In most industries, firefighting has proved one of the most valuable of all emergency services.

The plant fire chief should be responsible for firefighting equipment (e.g., extinguishers, water supplies, fire pumps, dry powder, liquid foam, etc.); it should be inspected and tested regularly, and appropriate recommendations made to plant management for any necessary improvements or replacements. He should direct the training and equipping of all fire brigade personnel. Retraining, using all types of firefighting equipment on live fires, should be carried out periodically. In the event of fire, the chief should personally direct all necessary activities.

The plant fire chief should maintain liaison with firefighting forces in the community and nearby mutual-aid organizations. He should keep them fully informed (during periodic visits to his plant) on the types of fire hazards there and the characteristics of materials involved. In the event of a nuclear disaster, it is unlikely that outside help would be available. In such case, the plant would have to rely on its own capability for control of fires; and firefighting activities might be severely limited by radiation hazards.

The fire service, in cooperation with the engineering service, should possess the know-how and equipment to carry the responsibility for radiological decontamination following a nuclear attack. Washing down buildings, driveways and walkways, and cleaning equipment and other materials will hasten ability to restore production and services to the public.

Training in fire prevention and control is available from local community fire departments. Special publications on control of fire resulting from nuclear attack are available.

Medical service

It is anticipated that a disaster would overtax the facilities normally used as plant dispensaries, or destroy them completely. For this reason, emergency casualty stations should be preselected. Consideration should be given to the possible use of washrooms, change

houses, canteens, storerooms, and other areas which might be suitable. At least one such station should be selected in each area in the plant, with alternate locations specified. Functions performed there would include screening of casualties as they are brought in (to determine priority of attention), treatment for shock, bleeding control, relief of pain, dressing of wounds, splint application, initiation of identification and casualty records, and arrangement for transportation to other facilities.

Severe cases, after receiving first aid, should be transported as quickly as possible to the nearest available medical center staffed by physicians and nurses.

The emergency medical service should be built around the facility doctor or nurse. Additional help—up to 10 percent of the total personnel—might be assigned to medical duty.

The Medical Service must arrange for an adequate inventory of medical supplies, which then should be checked periodically. They might also initiate information programs to insure good health under shelter conditions, and to remind employees to keep available any special medications required.

The Public Health Service and the Office of Civil Defense, in co-operation with the American Medical Association, Council on National Security, and Committee on Disaster Medical Care, have developed a "Medical Self-Help Training Program." It is designed to prepare people for survival when professional health personnel are not available. This training is a necessity for all employees assigned to a company's Medical Service. The 16-hour course is given without charge under arrangements made by the state health department and the state civil defense office. The local Civil Defense Director can provide specific information.

Rescue service

The mission of rescue squads in a natural disaster, industrial accident, or enemy attack is to:

- Locate and extricate persons entrapped in damaged buildings, shelters, vehicles, and other enclosures; or from radiologically contaminated areas.
- Render essential first aid during the release of victims and their removal to the nearest safe location or aid station; or until first aid teams arrive.
- Remove bodies of victims.
- Recover critical supplies, equipment, and materials (e.g., valuables, clothing, food, medical supplies etc.) needed for survival.
- Assist in making emergency repairs and shoring up damaged buildings.
- Assist in clearing debris.

Rescue operations should be carried out in two phases:

(1) Removal of persons *lightly* trapped either on the ground or within slightly damaged structures. These removals may be effected by people with basic rescue training.

(2) Removal of persons *heavily* trapped either on the ground or within heavily damaged structures. These rescue operations depend on the services of highly trained and equipped rescue squads.

The squad is the basic unit of the rescue organization. Rescue squads should be composed of four to 10 persons per shift, per area.

A squad leader and assistant squad leader should be selected. Where possible, squad members should have construction and maintenance trades backgrounds. They should be physically able to endure arduous work for long periods of time. All should be trained in first aid.

Ask the local or state Civil Defense Director for *Emergency Rescue Training*, SM14.1 and IG14.1-2.

Welfare service

Plant managers should assure that in the preparation of all emergency plans adequate consideration is given to the welfare of employees and the public.

In the event of a major natural disaster (e.g., flood, hurricane, tornado, etc.), problems of food, drinking water, sanitation, and emergency shelter require immediate attention. In the event of a nuclear attack, a major portion of emergency welfare service will be assumed by fallout shelter management.

At least one individual in the plant manager's emergency control group should be made responsible for:

- all emergency welfare services.
- establishing liaison with appropriate agencies Civil Defense or Red Cross).
- utilizing facilities available for alleviating emergency hardships.

Among the "emergency welfare services": feeding, clothing, lodging, emergency welfare registration and inquiry to help locate and reunite separated family members, financial assistance, and social services.

Because plants and their shelter facilities may have to be used as community welfare centers during major disasters, industrial plans for emergency welfare services should be coordinated with those of the community.

Training is available through local Civil Defense and welfare offices. Ask for *Basic Course in Emergency Mass Feeding*, H-15, and IG15.1.

Shelter management service

Group shelter living requires management by trained leaders. Accordingly, a shelter manager should be appointed for each plant and/or facility. His first duties should be to:

- get special training in shelter management for himself and his staff. The company emergency coordinator can arrange for such training through the local civil defense office.
- find out what public fallout shelter is available. how long it will take employees to get there, and whether it has been stocked.

- ascertain how his plant can help make more effective use of the available shelter for people in the immediate area.
- make sure that all employees recognize the fallout shelter sign.
- check the route employees must follow in going from their work-place to the nearest fallout shelter, and identify any hazards that should be eliminated.
- arrange practice drills for the mass movement of employees to shelter areas in a manner designed to maintain order and prevent panic.

Local government can provide training in shelter management. Ask for *Shelter Management Training Kit*, K-41 and *Shelter Management Textbook*, SM16.1.

Radiological monitoring

Radiological monitoring is an indispensable service to all civil defense organizations and their operations. In the event of a nuclear attack, trained monitors will be required to furnish information essential for human protection. Monitoring services will be required from the period shortly after a nuclear attack until the radiological hazard from fallout diminishes to the point where normal activities may be resumed.

Radiological detection and measuring instruments are being placed in all public fallout shelters, and individuals are being trained in their use. Company service should be provided by a radiation monitoring squad, operating under direction of the emergency coordinator. At least one radiological monitor and alternate should be available for each shift.

The emergency coordinator should organize the squad, appoint members and leaders, assign appropriate duties, and supervise the radiological monitoring training program.

In undertaking activities to re-store production after a nuclear attack, it would be imperative to have areas, equipment, and facilities checked first by the radiological monitors.

A storage place for monitoring equipment should be selected in a place least likely to be damaged or blocked by debris. Members of the monitoring squad should not be assigned to any other defense group.

Special courses and publications are available. Ask for *Radiological Monitoring Student Workbook*, SM11-21.1, *Handbook for Radiological Monitors*, FGE-5.9, *Handbook for Aerial Radiological Monitors*, FGE-5.9.1. and *Radiological Monitoring Training Kit*, K-24.

Engineering service

The engineering service, in co-operation with the other emergency services, should develop and maintain emergency facilities; establish and test shutdown procedures; prepare damage-assessment reports; and perform post-disaster repairs and restoration.

They may also be called upon to design, construct, equip and maintain: fallout shelters at the plant site; the plant warning system; the company control center and the emergency communications system.

These facilities may have special emergency requirements for water, light, heat and ventilation. Some may require emergency generators to assure availability of electric power.

The engineering service should also collaborate with the medical staff on sanitation engineering (e.g., the inspection and proper control of toilet facilities, garbage and trash disposal, hygienic procedures) for all emergency facilities.

They also should study all operations to determine whether precautions are necessary to protect equipment during shutdown and preserve it over an extended period of non-use. Personnel in each department should be trained in shutdown procedures.

Each company's disaster planning should consider all utilities such as water, gas, steam, power, ventilation or refrigeration devices. Drawings showing the location of key valves, switches, and feed lines should be accessible during an emergency.

Consideration should be given to maintaining an adequate water supply after shutdown. A survey of all water-collecting units should be made (e.g., sprinkler lines, processing water tanks, tubs and kiers in wet-processing operations, and water being used for humidifying purposes). In many cases, such water may be used for firefighting, decontamination procedures, and general sanitation even if it is not fit for drinking. The use of water from nearby rivers, lakes, or wells also should be considered.

A secondary source of drinking water is available in federally furnished water drums in public fallout shelters.

Warning and communications

Adequate and timely warning of an approaching natural disaster or enemy attack is one key to survival. Local civil defense warning systems use both outdoor and indoor signalling devices—sirens, whistles and horns for outside, more sophisticated equipment inside.

Indoor warning may be given by: public address systems; pre-recorded emergency announcements; direct emergency telephoning; muzak systems; factory and train whistles, fire sirens and bells; flashing lights; television and radio backup, including 2-way citizens band radio communications for industrial application.

A west coast company describes how its plant public address system is used for warning: "Each major plant has a public address system which is routinely used for internal paging and announcements. The guard dispatcher, by a flip of a switch, can take complete control of the public address system for emergency announcements. The general notification to employees is given by prerecorded announcement played over the public address system by the dispatcher. The company feels a record is desirable in order that the message be given as clearly and concisely as possible."

Employees must be informed what the warning signals are, what they mean, and what action is to be taken.

It is essential that each facility make advance preparation to assure the flow of communications. This includes the planning, installation, and operation of selected telephone, telegraph, teletype, radio, microwave, and siren warning systems.

An emergency operating center (EOC)—command headquarters for a single plant or a group of plants forming a facility complex—should be established. From the EOC should come the direction of warning damage control, rescue, relief operations, mutual aid, and coordination with civil defense authorities.

The EOC should be located in a shelter zone, preferably in a basement or the center core of a building, for maximum protection. The organization and staffing requirements will vary. For a small facility, the coordinator of emergency plans and a telephone switchboard operator would suffice. A larger facility may need additional staff for maintenance, medical service, decontamination, firefighting, guard and rescue services, mutual aid, and messengers.

Communications equipment might include an alternate power source (e.g., spare batteries), pre-recorded tape messages to be used at the time of initial warning, and control switches for activating warning sirens, if such are required to give full plant coverage, particularly in outlying areas. Wall mounted layout maps of the plant and other pertinent information should be available. Since the EOC should be adequate as a fallout shelter, the normal stock of supplies should be included.

Transportation service

All transportation equipment—cars, trucks tractors, scooters, and even non-powered cars—should be made available during an emergency. Each piece of major equipment should have written instructions placed adjacent to the driver's seat, stating its assignment. The transportation services group should direct the utilization of equipment, develop plans for transportation of personnel to community shelters, move casualties to first aid stations or hospitals. Correlation of services with adjacent plants under a mutual-aid agreement can be an additional important function.

Before an emergency, company trucks could be used to assist the local government by moving fallout shelter supplies (e.g., water containers, food, medical-care and sanitation kits, and radiation-detection instruments) from warehouses to the company shelter area.

Testing the self-help organization

Perhaps the key step of good industrial preparedness can be described as the "follow-through," in which the plant manager and his disaster-control group evaluate results. In this step, plans are put into simulated operation. Drills may be conducted for: shutdown of individual units and of the entire plant; emergency evacuation of single units and of the entire plant; firecontrol procedures; first aid handling of individual cases and whole groups and rescue work and all the other elements which make up the plan.

Industrial preparedness planning is fully developed only when: the probabilities of the problem are accurately defined; the organization is created to cope with them, and the organization is thoroughly skilled in carrying out integrated disaster-control operations.

It remains only to keep the planing and training current in the light of new techniques and new knowledge.

Inventory of employee skills

Often the question arises—how do I find dedicated and capable employees to staff the various emergency services? Do I arbitrarily select certain employees and give them this added assignment, or do I ask for volunteers?

In many companies there are employees who are trained and experienced in lifesaving and property-protection skills and activities. A former member of a community volunteer fire department is a good candidate for the plant fire brigade. A medical corpsman who rendered first aid to the wounded while in military service is a good candidate for the plant medical and health service. Some of your employees may already be trained in nurses aid, rescue techniques, police and guard duties. From a cost standpoint, you will effect a saving if you locate employees with the training you need—thereby eliminating and large-scale training program.

A simple method for obtaining the information is a questionnaire which each employee is asked to fill out. Questions should elicit information regarding training and skills which can be effectively utilized in the company's emergency self help organization. Many companies have reported the full co-operation and interest of their employees in such an inventory.

It should be made clear to each employee that information is voluntary. The purpose should be clearly explained. Where an employee declines to complete a questionnaire, the matter should be dropped, because the voluntary aspect is essential to maximum use of employee skills in the company self-help plan.

From the employee's standpoint, the information he divulges may assist him in obtaining a higher job classification. It acquaints management with heretofore unknown skills and interests which may be put to good use in the work of the company. Consideration for a job opening may be given to an employee who has indicated both an interest and a particular skill on the questionnaire.

If your company has a bargaining unit, the shop steward or other union representative should not be overlooked. Many unions have taken full responsibility for obtaining appropriate personal background information and making it available for emergency organization purposes. Employee clubs may be able to provide information regarding skills and interests. Some companies have made it standard practice to have employees fill out a skills questionnaire at the time of entrance on duty or change in work location.

A simple 3 x 5 card file of employees, by emergency-skill category, will meet most needs. For example, under each category—firefighting, rescue, first aid, police—would be placed the cards of employees with the requisite skill, containing their names and work assignments.

Industrial emergency and disaster preparedness is not costly but it takes time. Don't expect to accomplish it overnight. But in establishing the plant self-help organization in accordance with the steps outlined here, remember that you serve not only your own business interests, but also the welfare of your employees and their families, your community, and the nation.▲

EMERGENCY... (*Continued from page 4*)

Should an accidental gas release be detected that might be a hazard away from the plant site, community alarm devices are immediately activated.

The Community

The Emergency Measures Organization, in cooperation with local authorities and supported by CGE has developed safety procedures to follow should any hazard to the community be indicated.

If there is a serious gas escape from the CGE plant, EMO will activate a warning system including a pulse note signal, lights flashing on the highway, and local radio messages.

What are the probabilities of Accidental Spill?

In the history of heavy water production, no fatality has every been recorded from the use of the gas. This safety record is due to industry's expertise with H_2S and to the elaborate safety measures that are taken when it is used.

Heavy water looks and tastes like ordinary water and is, in fact, safe enough to drink. But it is about 10 per cent heavier than ordinary water, and is roughly worth its weight in silver. It is a costly and difficult job to obtain it in pure form. Ever since it was first isolated in the 1930s, heavy water has been scarce. For years it was merely a curiosity, but wartime atomic developments make it strategically valuable. The development of Canada's reactor program in the 1960s made it essential for Canada to produce its own supplies of heavy water.

The risk of accidental spill of hydrogen sulphide from the plant is exceedingly remote. Great care has been taken in the design and construction of the plant to ensure that only materials meeting CGE's exacting specifications were used. All parts of the process exposed to hydrogen sulphide were tested at pressures far above their normal working values.

Hazard to local communities is even less than that within the plant property. The outside hazard is virtually eliminated by the stringent plant safety measures to control hydrogen sulphide and prevent a gas leak—and by the immediate response systems provided for detecting and dealing with a leak, should one occur. From detection to response would be only a matter of seconds. Thus, the possibility of any significant amount of escaping gas ever leaving the plant property is "one chance in a million,"

Clearly accepting its responsibility for the safety of the community, the Canadian General Electric Company prepared a pamphlet which was given widespread community circulation. The pamphlet details the measures to be taken, as summarized below, to ensure community safety:

"If you can smell hydrogen sulphide, it is in a low concentration and not necessarily hazardous (in high concentrations it has no odour). However, when you smell it in conjunction with the warning, or whenever you hear the warning, here are four safety steps to follow:

1. If you are in a car, close windows and ventilators and drive upwind or crosswind of the plant. If this is not possible go to the nearest building.
2. If near home or building, go inside. Shut doors and windows. Close off ventilation from outside air, including furnace blowers and draughts on furnaces and stoves. If gas has entered, it is slightly heavier than air and will gradually sink to lower levels. Stay in upper parts of the building.
3. Turn on radio station CJFX, Antigonish (580 on the dial) and listen for reports.
4. Do not go outside until the 'all-clear' has sounded or been reported on the radio."

The publication also explains heavy water, its manufacturing process and the use of materials in its production.▲

NATO CIVIL DEFENCE COMMITTEE-1971

During the annual conference of senior North Atlantic Treaty Organization planners in Brussels, September 27-29, 1971, papers on national aspects were presented by several countries. The following are transcripts of presentations by representatives from France, the Netherlands and the United States of America. The address by a representative from Denmark will be published in the February-March edition of the Digest. Canada's presentation was published in the October-November 1971 issue.

CIVILIAN AND MILITARY CO-OPERATION IN CIVIL PROTECTION

by

J. Perreau-Pradier
Préfet Civil Protection

As Prefect and Director of the French National Civil Protection Service, I am very honoured to speak to you today about the methods used in France to improve wartime Civil Protection at reasonable cost.

To do this, cooperation with the Armed Forces has been steadily increased, and it is the description of this evolution that I shall deal with in my talk.

I will then be glad to answer any questions you may have.

Civil Protection is a modern concept. It was not until the Revolution in 1789 that the notions of safety and solidarity began to gain ground in France. Until then only the danger of fire had prompted research into preventive measures and combat means. Thus for centuries society depended on charitable institutions, generally religious communities, for the organization of assistance.

Finally, in 1790, the Act of 16-24 August, made mayors 'responsible for preventing, by suitable precautions, and stopping, by providing necessary assistance, accidents and calamities'. Thus the responsibility of public powers was formally stated for the first time. However it was no more than a wish, and for a long time of organization of assistance did not go beyond the rudimentary stage, except in Paris where an engineering battalion had been detailed for firefighting in 1811, following the dramatic burning of the Austrian Embassy. In 1866 this battalion became the Regiment of Fire-Fighters of Paris.

On 5 April, 1884, an Act, which is still the basis of French municipal organization, officially confirmed the respnsibility of the mayor to ensure safety in his commune.

However, although willing, municipalities were in a poor position to fulfil their mission. They did not have enough money at their disposal to acquired and maintain suitable equipment, and the training of firemen was unorganized and haphazard. As a result, at the beginning of the Second World War, two-thirds of all French communes had no fire-brigades.

The fire that devasted the Nouvelles Galeries in Marseilles, in 1938, gave the general public the necessary psychological shock by proving that emergency assistance operations left entirely to local government were insufficient to meet the problems of the modern world. The idea was then advanced that the State should henceforth guide, support, and coordinate the efforts of municipalities and, in extreme cases even intervene directly with all the means at its disposal. The possibility of using Armed Forces units—the French Navy in this case—was again envisaged.

The Act of 11 July, 1938, organized the country on a wartime basis and instituted Passive Defence, which was the responsibility of the Ministry of National Defence. However, circumstances rapidly led to the transfer of Passive Defence to the Ministry of the Interior, on 16 March, 1942. Act No. 597 of 20 September, 1943, grouped the Passive Defence Organization and the Fire Services under a General Civil Protection Branch.

The Second World War with its massive means of destruction that ignored the traditional distinction between combatants and non-combatants and endangered the very survival of the nation, the general acquisition of nuclear weapons which increased this threat, the understandable fear of the dangers that even the peaceful use of the new form of energy produced by the disintegration of the atom could present to the population, perhaps the high international tension during the Korean War in 1950, and the terrible fire that devasted the forests of the Landes in December 1949, were all factors that showed how important the problem was. This is why Decree No. 51-1314 of 17 November, 1951. "Concerning the organization of the Central Administration of the Ministry of the Interior" confirmed the re-grouping carried out in 1943 by creating the National Civil Protection Service role is to ensure the survival of the nation in war and to protect the life and property of citizens in peace.

This service was placed directly under the Minister

of the Interior and, by special delegation, under the Secretary of State who assists him.

The mission of the National Civil Protection Service is to ensure the survival of the population. To do this, it evaluates dangers, alerts, protects, and assists the population, and participates in the resumption of local activities after the disasters.

You will notice that this definition applies in peacetime as well as in wartime.

However, to fulfil this mission, two main factors must be considered:

- the existing state of affairs, and
- national budget limitations.

The best basis of any protection is prevention, in its many forms, since it is the individual who, more often than not, causes an accident or makes it worse through ignorance, irresponsibility or pride. Hence, the general public must be informed of the nature of the dangers threatening their daily lives, be cautioned constantly, and be trained in elementary safety procedures.

This mission is entrusted to the National Civil Protection Service which publishes and distributes leaflets and brochures, with the assistance of such organizations as the Red Cross, the National Civil Protection Federation, the National Civil Protection Union, and other emergency assistance associations. It also broadcasts advice and precautions on radio and television, sets up booths in the more important commercial fairs, and creates films for showing in public cinemas. More than a million copies of the Service's brochure "Savoir pour Vivre" have been distributed.

Unfortunately, persuasion is not always enough, as recent events have shown. In these cases, public authorities must issue explicit measures to ensure that safety rules are respected. This activity covers a vast area, from legislating on swimming and public establishments to laying down standards for construction materials and compulsory measures for the transport of dangerous products. All these regulations are based on sound legal grounds, specialized laboratory work, and continual technical testing.

This indicates the importance that the Civil Protection Service gives to theoretical and practical studies and its explains why there is such a large number of technicians. A Studies and Prevention Office was created recently to assess the probability of new dangers, to try and analyse their possible manifestations, and to devise methods of combatting them, as well as perfecting new techniques for dealing with known dangers. The technicians involved are military as well as civilian, and the army has agreed to detail a certain number of science and engineering students to do their military service in Civil Protection. This is one of the first ways in which civilian and military authorities cooperate.

A bombing alert system has already been established in close liaison with the air force. The Central Service Operations Room is partly manned by military personnel. Volunteer army veterans have been designated and instructed to assist mayors in their duties or to reinforce fire-brigades, which will continue to play an important part in the organization of emergency assistance. Finally, the National Civil Protection Service has installed a very tight network of 2,000 radioactivity warning devices called 'Alarme-Radia-Air'. France is covered by this ionizing-radiation measuring and alert network, and 'Alarme-Radia-Air' devices have been installed about twenty kilometres apart, in fire halls, police stations and gendarmeries, which are manned 24 hours a day. These devices will trigger an alarm whenever ambient radioactivity becomes too high.

Although military observers study the effects of conventional bombing very closely, in the case of nuclear attack they only detect the explosions. The calculation of fallout forecasts and the estimation and location of contamination remain the sole responsibility of Civil Protection, which performs these functions according to a system whose principles are well known to you, since they are applied during annual and interallied exercises.

The population is protected mainly by shelters. In this connection a choice had to be made between two possibilities:

- spending considerable sums on the time-consuming construction of solid, deeply-buried shelters capable of withstanding the blast effects of an atomic bomb exploding nearby, if not a direct hit;
- or building light shelters against radioactive fallout for most of the population.

The National Civil Protection Service chose the second solution, which is relatively economical. Since 1960 it has made a national inventory of all premises capable of providing suitable protection against radioactivity.

But let us now return to the existing system which we classified as the first main factor. The peacetime organization for assistance affects all of the country's main administrative levels—commune, department, defence zone, and state.

At the lowest level are the mayors whose responsibility, as we have said, is based on a fundamental principle that has been reaffirmed many times in French public law. To help them perform their duties they have a network of about 230,000 firemen, who are chiefly volunteers.

However, the normal means of assistance at the commune level are sometimes insufficient to contend with disasters or catastrophes, despite the competence and devotion of those involved. This is why intercommunal assistance is a necessity. Each department is therefore divided into 'operational sectors', with an assistance centre for each sector. As a safety measure, each commune is attached to two centres. This organization in no way precludes the existence, in some communes, of local fire-brigades which can take emergency action while awaiting the detachment sent from the assistance centre.

This system of mutual assistance was sanctioned officially by the Decree of 20 May, 1955, which instituted the 'Departmental Fire Protection Service' under the authority of the Prefect. Its Technical Branch is directed by a professional fire officer appointed by the Minister of the Interior. As Departmental Inspector of Fire and Assistance Services, he looks after personnel training, equipment maintenance, and establishment of operational plans; in the event of a disaster or serious accident, he directs all assistance operations.

There are cases, however, where the disaster is so serious that this system of assistance is insufficient. A veritable civilian mobilization is needed. Since immediate action must be taken, improvization is out of the question. To meet this need, the ORSEC Plan (Organisation des secours) was instituted; its principles, laid down by the interdepartmental order of 5 February, 1952, are, essentially: unity of command, assignment of missions to designated services, and coordination of operations. This system does not entail the creation of a new organization, the recruiting of reinforcement personnel, or the acquisition of additional equipment. Essentially, it is both an up-to-date inventory of the men and equipment available for assistance operations and a document which predetermines the missions and emergency command organization according to a uniform plan for all departments:

- **policing and liaison:** directed by the gendarme commander or the police chief
- **assistance and rescue:** under the command of the Departmental Inspector of Fire and Assistance Services
- **medical care:** organized by the Director of Health
- **transport:** under the command of the Departmental Director of Equipment
- **communications:** provided by the Communications Services of the Ministry of the Interior.

The overall operation is commanded by the Prefect, who, as a government representative, has control of all public services. The Departmental Director of Civil Protection acts as his assistant and technical adviser.

The ORSEC Plan is one of the most interesting and original aspects of the National Civil Protection Service. It is also an extremely economical measure, since a permanent body is not required.

The ORSEC Plan operates at the department level, and consequently is put into effect by the Prefect. He is expected to advise the Minister of the Interior and the Zone Prefect concerned when the department's resources are insufficient, and he may request reinforcements from neighbouring departments of the same defence zone or from the National Civil Protection Service, which has its own Operations Room.

The Zone Prefect, 'in Civil Protection matters, controls and coordinates the action of prefects for the preparation and implementation of assistance operations involving more than one department'.

In this way the State provides communes and departments with the peacetime aid which they need to fulfil their missions of protection and assistance. This aid may take other forms. Dealing with certain calamities requires considerable means which exceed local resources. A case in point is the fight against hydrocarbon pollution of the sea. This is dealt with by the POLMAR Plan, which we shall come back to in a moment.

The State grants subsidies to communes and departments to enable them to purchase up-to-date powerful equipment. It also looks after the constant retraining of specialized personnel in new fighting and prevention methods by organizing courses in Protection Service training centres in Paris and throughout the country.

Some missions, however, are completely beyond local facilities. One such mission prompted the establishment of the Air Group of the Ministry of the Interior by Order in Council on 6 June 1964. Twenty helicopters, at twelve different points in France, and an aero-commander airplane carry out daily rescue and emergency medical transport mission. Ten water bombers, used in Corsica and the south-east Mediterranean region, provide a satisfactory solution to the dual problem posed by fighting forest fires—water supply and difficult access to fires.

The fact that local authorities can count on operational aid at the national level is not sufficient. It is out of the question, for example, to make them responsible for the technical studies and testing which are indispensable to effective prevention and assistance. It is up to he National Civil Protection Service to do this work. Thus, for example, the creation of 'large complexes' such as tower buildings and stores covering large areas on the outskirts of urban centres obliges Civil Protection to familiarize itself with the latest techniques.

Hardly a month goes by without assistance specialists finding themselves faced with new situations. Danger is taking on more and more different forms, either through the use of hitherto unknown industrial processes or through natural catastrophes which produce consequences that the conditions of modern life render unforseeable.

One of the original, and not the least interesting characteristics of Civil Protection comes from the fact that its administrative action is always accompanied, even in peacetime, by operational action. This dynamism is all the more necessary, since the Service has to coordinate the assistance operations of many ministerial departments, be they plans for action or ordinary measures. It therefore activates the work of the administrators and technicians and brings civilian and military authorities together.

Cooperation between civilian and military authorities in Civil Protection matters is not exceptional in these conditions. It forms an integral part of their daily work, in the organizing of an alert system or of a rescue

system (ORSEC and POLMAR Plans, Operations Room). In Paris this cooperation has existed for many years with the fire-brigade, which consists of military personnel put at the disposal of the police chief. In Marseilles, an almost analogous system works with the Battalion of Naval Fireman.

When the ORSEC Plan is put into operation the army often provides almost immediate assistance, as when snow blocked a major motorway on the Assy Plateau or when a hail storm destroyed greenhouses in Antibes. There is even one instance where the armed forces, in the person of the maritime commader, takes action first. This is the POLMAR Plan, when the navy provides reconnaissance at sea, and, if necessary, starts to treat oil slicks off the coast.

However, the extent of problems posed by future world conflicts requires us to continue working towards an efficient wartime Civil Protection that will provide realistic and economical protection.

At this particular point in the development of Civil Protection, two basic texts were pubished:

- the Order of 7 January, 1959, which established the basis for the Civil Protection Defence Corps, composed of reservists.
- the Act of 9 July, 1970, especially section 13, which clearly provides for the possibility of detailing 'specialized military units' to Civil Protection duties.

The provisions of both texts are already being implemented. About a dozen units put at our disposal by the army are now being trained, and two experimental formations of about 400 men, one stationed on the outskirts of Paris and the other in the south, are to constitute the active nucleus of the future Defence Corps. Both these units and the first, trained, special military units (an average of 120 men per company) play an active part in National Civil Protection Service operational missions, especially fighting forest fires on the Riviera.

For reasons of efficiency and economy, we have tried to organize wartime Civil Protection around the peacetime structure. This has the advantage of facilitating as much as possible a rapid change-over from one to the other.

Defence Corps

Wartime civil protection must be provided essentially by the Civil Protection Defence Corps which will be called upon to command and initiate operations. This system includes a command structure and Civil Protection units.

Command Structure

At the national level there is a headquarters, similar in organization to a military headquarters. Its nucleus exists in peacetime and plays a role in the national ORSEC Plan. This headquarters will run the national Operations Room in liaison with the Armed Forces Headquarters and the technical ministries concerned with civil protection (150 to 200 people).

At the zone level the prefect has a headquarters of about sixty people, 80% of whom are reservists. Even in peacetime the zone prefect has a zone defence committee with civilian and military members and a secretary-general. The Civil Protection director of the department corresponds with the secretary-general on a regular basis and ensures liaison with the commander of the military region through the general zone secretariat.

At the department level the prefect also has a headquarters, 85% of whom are reservists. The strength of the department headquarters varies according to the category of the department:

- category A (vulnerable departments) 100
- category B (sensitive departments) 75
- category C (other departments) 50

Civil Protection Units

Three types of units will be established at the outbreak of hostilities.

At the Department level:

- ***Lodging Units:*** 'About 450 distributed throughout the country (their mission is to take care of victims and displaced persons, and to feed and lodge Civil Protection mobile units; they are divided into 6 groups (about 130 men altogether)—Command Group, Supply and Accounting Group, Operational Group, Preparation and Distribution of meals Group, Billeting Group, and Transport Group).'
- ***Civil Protection Centres*** (about 150 men): 'created from a certain number of peacetime "main assistance centres" of firemen; they will constitute a sort of "security grid". There are plans to create about 700 centres. Their mission will be essentially to assist the civilian population at the scene of disasters caused by 'war operations'. Each centre is divided into 5 sections—Command Section, Fire Section, Rescue & Clearing Section, Special Countermeasures Section, and Assistance to Victims Section.

At the Zone level:

There are mobile assistance forces. The current plan calls for the creation of 14 mobile assistance forces, 2 per defence zone, in 5 years.

Each mobile force of about 300 men is divided into 7 sections:

1 Command Section, 2 Fire Sections, 2 Rescue & Clearing Sections, 1 Special Countermeasures Section, and 1 Assistance to Victims Section. Their mission is to reinforce Civil Protection centres in the event of a major disaster.

(Equipment is now being supplied to the first mobile force, and testing will begin in the spring of 1972.)

Logistical Support from the Armed Forces

As stated previously, co-operation with the army takes place at the logistics level as well. In fact the Armed Forces Supply Services has agreed to provide certain surplus supplies (clothing or food) in peacetime. In time of war it could also assist Lodging Units, which normally requisition civilian stores. The operations equipment of Civil Protection centres and Mobile Forces will be supplied in agreement with the Armed Forces so that Civil Protection will be able to take advantage of Armed Forces contracts. The personnel for all Units, although given civilian status on mobilization, will be supplied by the Armed Forces Recruiting Office.

Urban Civil Protection Directors (in the case of communities with more than 3,000 inhabitants), Inter-urban Civil Protection Directors (in the case of several communes combined), District Chiefs, and General Protection Delegates (2,500 throughout France), all volunteers appointed in peacetime, will receive defence status from the Armed Forces or sign a voluntary engagement with the National Civil Protection Service.

In wartime, Civil Protection, organized at the national, zone, and department levels, will form an integral part of Civil Defence. However it is only a part, a part with a very particular nature, since its mission is not to fight the enemy or even to take part in combat operations, but to protect the population from the effects of hostilities and enable the country to survive.

Because it is part of Civil Defence, it naturally comes under the Minister of the Interior, like the Communications Service, National Police, and Economic Defence Agencies. But whereas Civil Defence includes all defence activities that are not strictly military, and operates under the Defence Council chaired by the President of the Republic (each minister remaining responsible under the Premier for the preparation and carrying out of measures assigned to his ministry), Civil Protection has essentially a survival mission similar to that of large international assistance organizations like the Red Cross.

In conclusion, let me remind you of the necessity for granting Civil Protection a particular status symbolized by the use of an internationally recognized insignia. Such a symbol would ensure a certain degree of protection to those wearing it, and in return it would be formally agreed that these personnel, whether civilian or military, would never engage in war missions. An insignia in short like that used by the Red Cross, but adapted to a national role.▲

SHELTER POLICY IN THE NETHERLANDS

by
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It is both, an honour and a pleasure, Mr. Chairman, to appear before this distinguished Committee in order to report on the development of the shelter policy and especially on the activities in the field of protective structures in my country.

First, I would like to touch briefly on the background and development of the shelter program in the Netherlands.

Almost from the start of a Civil Defence program with the passage of the Civil Defence Law in 1952 the shelter problem received full attention in accordance with the military assumptions that were valid during the years 1950-1960. The shelter policy in the Netherlands was aimed at the protection of the population against the effects of conventional weapons.

The principles, underlying the shelter policy during those years were: protection should preferably be found by the population in their own homes, and for passers-by taken by surprise, public shelters should be provided by the government at all frequented traffic crossings in vulnerable areas.

When establishing design criteria for protective structures in general and for private or public shelters in particular, the connection between higher construction costs and higher protection levels is the most important factor and since finance is the chief problem, each country has to make a choice between the extreme absolutes, i.e.:

- a shelter construction program in the normally accepted meaning of that term, this means to place the whole population in underground protected structures designed for giving full protection;
- doing nothing.

The answer to the question "what must be protected and how?" will always lead to a compromise between, on the one hand, assumed risks and on the other hand the cost and practical possibilities (cost-profit-ratio).

A protection against the effects of a near miss (a distance of 15 yards) for a 500 Lbs G.P.-bomb was taken and used as the standard of protection during the 1950-60 period. It was already clear that the basis of every shelter concept always had to be found in a maximum use of existing shelter resources (houses and/or large buildings) and that shelter construction could be realized on a limited scale only.

Based on the starting-points sketched before the following was achieved during this period:

1953. The execution of the first phase of the single purpose public shelter program, comprising 46 units for 50 and 91 units for 100 persons. The legal basis for this program was a ministerial decree of that year which laid down what types of shelters were to be built and how costs were to be divided. Facets of the decree were:

- *Protection-level:* provide protection against the effects of a near-miss of a 500 lbs general-purpose bomb.
- *Capacity:* 50 or 100 persons.
- *Construction:* a rigid structure enclosed on all sides by solid reinforced concrete walls.
- *Costs:* The Government pay the necessary building costs, the design and the control during the execution. The municipalities donate required building sites and be responsible for the maintenance.
- *Ventilation:* Forced ventilation with gas- and sand-filters.
- *Execution:* The independant, single-purpose public shelter can be built below, half sunken or above ground depending on the ground water level.

As soon as the shelter program was put into operation, difficulties, partly based on the unpopularity of the program, and on "public apathy", arose in the municipalities. As a crowbar for justifying inaction arguments were used like, "the disfiguration of streets, squares and parks"; "investment of non-interest-bearing capital".

In reality, only the first phase of this shelter-program was realized. As a result of opposition the second phase comprising of 140 units for 50, and 280 for 100 persons, did not come under construction but efforts were made on the one hand to give the single-purpose shelters a peace-time function and on the other to design shelters as part of new buildings. Since then, less opposition has been experienced and the so-called dual-purpose shelters in particular have aroused much interest.

Dual purpose shelters can be divided into two types: independent single-purpose shelters with a peace-time function and public shelters designed as parts of normal structures. Both types of shelters can be either ready for immediate use or can be made ready within a few hours. Combination of shelters and underground traffic subways belong particularly to the second type dual-purpose shelter.

Although these examples show clearly the advantages of the principle followed, it might nevertheless be useful to summarize these advantages.

They are:

- the shelter-space serves a useful peace-time purpose,
- the cost per shelter space is much lower than the cost per space for a single purpose public shelter,
- the protection level in most cases will be much higher than the basic requirement set for the construction of a single purpose public shelter.

With regard to the so-called dual purpose shelters, experience in this country has shown that this shelter-type has been accepted at all echelons of government and from a technical/economical point of view, that traffic (bridge-heads, pedestrian and traffic tunnels, underground parkings and sub-way stations) offer the most favourable possibilities for this purpose.

Though there are arguments against combining traffic structures with shelters, it is not doubted that underground traffic structures would give protection in an emergency. As a matter of fact, underground structures offer already a certain degree of protection, simply because they are located under the ground, even if they are not properly protected from the constructional point of view. In that event, individuals run a greater risk than they would in a properly protected underground structure.

Apart from the activities in the field of public shelters mentioned before, in the same period the following measures were taken: In 1956, legal regulations passed the parliament requiring shelters in new houses of more than two stories. Basements of such structures had to offer reasonable protection against splinter effects and collapse. These new homes were required to satisfy four main requirements:

First: the building should have a basement in which to build the shelter;

Second: there should be entrances to, exits from, and connections between a complex of shelters;

Third: the floors and facings of upper stories should be of masonry;

Fourth: building construction should be such that destruction of outer walls would not result in collapse of the entire structure.

In 1968, the afore-mentioned Royal Decree was adapted to provide fallout-protection.

By Royal Decree of March 21, 1958, the management of any establishment where 30 or more persons are simultaneously present were obliged to make preparations for creating shelters that could be realized within one week if necessary. The requirements of this Decree were directed toward protection against a near miss from a general-purpose bomb, i.e. splinters, fire and collapse. In view of the continuous progress being made in the development of nuclear weapons, it is considered essential that the requirements for industrial shelters be adapted to provide fallout protection.

I would like to mention at this point, that private shelters in multi-storeyed homes are increasing at a rate of about 200.000 shelter spaces a year (since 1956 to the present time capacity more than 2.5 million shelter spaces) and that public dual purpose shelters provide spaces for about 135,000 persons.

At the end of the fifties and the beginning of the sixties the nuclear threat had become an increasing factor in

military strategic thinking in consequence of which also more and more attention was given to the protection of the population against the effects of nuclear attack.

Studies, carried out in the beginning of the sixties by the C.D. Department in the Netherlands, of a wide range of hypothetical nuclear attacks against the Netherlands and/or against neighbour countries showed clearly, that:

- in the event of an all out nuclear war the direct effects would take a high toll of lives;
- outside the direct effect areas radiation from fallout would be the major hazard;
- if the population as a whole would be able or could be put in a position to protect itself against radiation from fallout it would be possible to protect a—large—part of the population living outside the direct effect areas;
- fallout shelter program appears to be the least expensive way of saving many lives.

From the many proposals that were advanced with regard to the protection-level, a protection factor of 30 was taken as the standard for fallout protection because, on the one hand, in the Netherlands a substantial proportion of the existing one-family-houses and large buildings have no basements and because, on the other hand, the increase of the shielding capability in existing structures (by increasing the mass or weight of the walls and floors and by adding baffles or shields at entrances and other openings) of above-ground buildings designed to satisfy their normal functions, would be unattainable for practical and financial reasons.

Based on the changed assumptions and views as indicated, from 1960 up till now, the following activities were developed:

- In 1961, in a nation-wide information campaign the population was given information on the conduct to be adopted by the individual in case of an emergency and on how to provide for a fallout shelter in a house, office or workshop.
- Since a fallout shelter program is not a "construction" program, but focuses on giving a dual purpose to existing structures, in 1962 steps were taken for the identification of present fallout shelter capacity in existing structures (houses/buildings). A start was made by the execution of a confidential experimental local pilot survey in a small rural municipality. In addition sample surveys were carried out in larger cities and in some districts. The purpose of these experimental surveys was, to widen the experience and to get a better insight in the practical difficulties regarding the organization and realization of a nation-wide survey.
- In 1965, the Government was recommended to initiate a nation-wide long-range program for identifying the available fallout shelter capacity in existing houses and buildings.
- In 1966, the Government accepted this suggestion, decided to strive for the provision of fallout shelter space for every citizen and, to this end, activated a nation-wide fallout shelter survey to be spread over about 5 years.

At this point Mr. Chairman, I should like to interrupt myself by emphasizing the tremendous help and support we received in the past years from our U.S. colleagues with respect to all survey problems we met and I should like to state, that during all these years the relations we had in this field with the U.S.-OCD have been exceedingly profitable to us. There has been a constant exchange of thoughts and experience between the authorities in both countries and our U.S. colleagues have always been ready to advise us and to give us all the information we asked for. Therefore, I want to express before this Committee our warm thanks for the most valuable contribution our U.S. colleagues made in this way to the successful outcome of our activities not only in the field of the survey but also in all related fields.

Since the results of the experimental surveys indicated that the resourses of existing shelter space were far from sufficient to meet the required number of space and since it became also apparent that existing shelter space was not in all cases located where it was needed, the question how to meet the deficit became the main problem.

To get answers to this question, in 1967, a Shelter Committee was set up by the Government to advise the Government in what way, in what time and to what extent the provision of fallout shelters for the whole population would be feasible within reasonable financial limits.

I may turn briefly now to the extent of the main problem: the shelter deficit.

The fallout shelter capacity we expect to have available after finishing the national inventory in 1972 amounts roughly to the following:

- in nearly 40% of the houses a p.f. of 30 can be realized by simple means;
- nearly 24% of the population can be sheltered in large buildings by simple means;
- the deficit remains about 36% of the population.

Before analysing these figures a definition of the term "shelter space" has to be given.

- A shelter space is defined as 4 m3 of space affording a protection factor of 30 or more in unventilated areas or 0.5 m2 of space in areas providing 30 litres of forced and protected air per person and per minute.

On the face of it, the figures mentioned look quite good—but in reality it is not quite that good. Our studies indicate that there are about 4 million existing one two or more family houses of which about 1.5 million, or about one-third, will provide a protection factor of 30 with or without additional provisions. That means, however, an insufficient protection for the people living in almost 2.5 million houses. In these 2.5 million homes live about 8 million people.

The home-shelter-capacity supplemented by the capacity identified in large buildings will cover—theoretically—about 64% of the population. It means in sum

that more than 8 million people, on a total population of 13.1 million ultimate in 1970, could be reasonably protected against fallout radiation. However, these statistics are mostly mere theory. There are some uncertainties in this approach which indicate that the deficit will be higher than is suggested by the figures mentioned. There are a number of reasons for this pessismism and I would like to mention a few of them:

- the distribution of shelter spaces, especially in rural areas is far from ideal;
- not all of the present spaces identified in large buildings are located where they are needed;
- not all of the present spaces in large buildings will be available at the moment they will be needed.

Because of these reasons it is estimated that the effective shelter capacity in large buildings will be less than the identified capacity. In conclusion: the deficit will be higher than the theoretical results of the survey indicated.

After this information the main question is how to meet the shelter-deficit.

In order to reach the main objective, i.e. to provide the entire population of the Netherlands with protection from radioactive fallout, the Shelter Committee, mentioned before, studied various methods to meet the shelter deficit. Obviously, these studies could be based only on the theoretical results of the national survey. In 1970 the Committee suggested the following measures and actions to the Government:

1. Legal regulations on the provision for fallout protection in new *one-family* dwellings analogous to those required since 1956 (adapted in 1968) for new multi-storeyed dwellings. This in order to stop the increases of the deficit in this sector.
2. Since a high proportion of the identified *large buildings* without any improvements being made, would provide a protection factor of between 20 to 30 only and because only by way of making additional provisions the protection of 30 could be attained in these buildings, it will be enough to locate those buildings and shelters, but we shall also have to plan for—and to try to insure—the full and effective use of them in a period of emergency.
3. Increased production of dual purpose shelters in areas where there are unfilled shelter requirements. It is anticipated that more expensive shelter solutions will be required in certain (rural) areas where there are little new constructions and no or few home basements. In those areas single purpose shelters as parts of normal structures will have to be built with governmental funds.
4. Application of the design technique called "Slanting" as it has been developed by the US-OCD. Adaptation of the technical information on applied "slanting technique" to the Netherlands method of design and construction seems to be necessary. The C.D. department will provide guidance and advice on slanting technique to any architects or designers not familiar with fallout protection.
5. Within the framework of a full fallout shelter program, lifesaving information and instructions, which will enable government, private institutions and the individual to cope with the nuclear dangers, will be of high importance.

Though it will be obvious that in the face of the realities of the modern world an effective nation-wide fallout system must be considered as an essential component of civil defence, the realization of such a system still remains a matter of finance.

Because of this, the Committee calculated not only the effect from the various measures mentioned on the increase of shelter space in a long term planning, but also the financial consequences of these measures over two periods of 15 and 20 years respectively.

On the assumption that the provision of shelter space in one-family homes would be legally regulated and that the "slanting technique" could be applied on a large scale, the effect on the increase of shelter capacity over those two periods was calculated and is shown in the following tables.

Description	Shelter spaces (in millions)		
	1970	1985	1990
Sufficiently protected in the own homes	5.2	9.8	11.3
Sufficiently protected in basements of multistoreyed houses and large buildings	3.1	4	4.35
Insufficiently protected	4.8	1.6	0.55
Total number of populations (assumed numbers for 1985 and 1990)	13.1	15.4	16.2

This scheme shows clearly that the realization of a nation-wide fallout shelter system mainly depends on the legal regulations on the provision of fallout protection in new one-family homes and that all the other measures constitute only a limited contribution.

The financial consequences resulting from the various measures mentioned before over 15 and 20 years respectively, are shown below:

Description	Period 1971–1985 (in millions) (guilders)	Period 1971–1990 (in millions) (guilders)
One-family houses	nil	nil
Multi-storeyed houses	nil	nil
Large buildings	4.5	3.7
Dual purpose shelters	21.4	5.5
Per fiscal year in peace-time	25.9*	9.2*
In an emergency for additional provisions in large buildings	34	37

*Not included the financial consequences of the realization of shelter-provisions for passers-by.

Final decisions on these suggestions for covering the national fallout shelter gap have not yet been made but there is reason to believe that this shelter policy will be adopted by the Government.

It will be clear that the realization of a nation-wide fallout shelter system needs more than a survey alone. Effective use of a fallout shelter system requires governmental authorities to know with precsion not only the extent and location of the shelters and the deficits, but also to know the technical and financial possibilities to maximize the existing shelter spaces. Until additional shelter is developed, the only sensible action is to prepare to take advantage of the best available shelter in the event of attack. Consequently the next step will be the development of the local fallout-shelter plans.

Starting this year each community will be provided with instructions and guidance on how to prepare as rapidly as possible a local fallout shelter plan based on the results of the fallout shelter survey. The basic purpose of this action is to develop all protective capabilities in the community, both public and private and to define the areas where more fallout shelter is needed.

Such planning must be done at local level with governmental technical and financial help. This program includes in the first phase:

- identification of the shelter resources,
- identification of the extent and nature of the improvements necessary in a high proportion of the large buildings in order to increase the protection factor to 30,
- identification of the neighbourhoods where additional shelter spaces are needed.

In the next phase the results of the local shelter-plans will be analysed especially with respect to the shelter needs and the improvements necessary in large buildings to increase the protection level.

Although a high proportion of these large buildings could be improved quickly and cheaply to the point where their protection factor would be 30 and although such improvements should be made preferably before a nuclear emergency arises, in many cases these improvements could only be made completely or partly during a period of crisis or even when an attack would be imminent.

In this phase it would be necessary to examine what improvements could be made in peacetime and what improvements would have to wait for the last minute.

The activities in the third phase will be concentrated mainly on the execution of such improvements in large buildings that can be realized in peacetime. Such improvements will be made as soon as possible at government expense. In addition to these local shelter planning actions, full attention will be paid in the meantime to the other various measures and actions suggested by the Shelter Committee to expand our survey and increase shelter resource as for instance the construction of dual-purpose-shelters and the information of architects and engineers in government and private construction on ways to design fallout protection into new structures at little or no additional construction cost.

It will be clear that what is needed to protect the population from fallout is not fallout shelter alone but rather completed with the supporting systems required to ensure maximum performance by the entire civil defence system. These supporting systems include, among others:

- emergency control centers,
- a warning system,
- a radiological monitoring system, etc.

The existence of protected emergency control centers is one of the essential elements. From these properly staffed and equipped centers national, provincial, district and municipal chief executives and their key assistants, can not only warn the population of the threat but also exercise direction and control over all emergency operations with communications to all govvernmental levels and rescue forces.

These newly built, heavily protected single purpose centers are completely operational at national, provincial and district level, comprising in total 55 centers. At provincial level most of the C.D. control centers have been built in combination with the provincial civil emergency control centers.

In addition to these centers each municipality will have or get their own emergency center. Most of these centers are located in the basements of existing town halls. Few have been built as single purpose structures. They have been proofed against fallout (p.f. 50). We expect that today about 300 municipal emergency centers are operational. In all, there are about 900 municipal governments in the Netherlands.

Finally, some details about the governmental control centers.

The primary principle on which the construction of a control center has been based is the protection of its functional operation and consequently of the staff manning it.

The main design criteria established for these centers are:

- protection against blast and other effects of nuclear attacks up to an air pressure of 3 kg/cm^3 ($\pm$ 43 psi) for national and provincial control centers and
- up to 1.5 kg/cm^2 ($\pm$ 22 psi) for district control centers,
- both types must also afford protection against the effects of a near miss by an average size general purpose bomb and
- both types must afford protection against chemical and biological warfare.

The network of the C.D.-communication system in use in this country is fully operational and follows the general organization lines:

- No. 1. Network: National Command—Regional Command
- No. 2. Network: Regional Command—District Commands

- No. 3. Network: District Commands—local authorities and executive C.D. units (mobilephone and portophone equipment).

The above mentioned networks 1, 2 and 3 comprise telephone circuits, telegraph, telex, radio and facsimile.

The warning system based on one siren per 1,000 inhabitants is fully operational.

The radiological monitoring system includes, among others, 305 static measuring points which are fully operational.

These, Mr. Chairman are just a few examples of activities in the field of protective structures developed in the Netherlands.

I could cite other examples, but I have already talked too much on a subject that is too close to me.

In summary, Mr. Chairman, I do hope, that the subject I was dealing with today has given you a clear impression of the situation with respect to the present national shelter program and the related emergency control centers in my country.

It will be obvious, that the program is far from perfect and far from complete.

Although imperfect and incomplete, the program has made progress and there exists a significant amount of fallout protection. The fallout shelters, the warning network, the emergency communications and control centers could save already a high proportion of the population from fallout in a nuclear attack.

Nevertheless much remains to be done in order to close the remaining fallout-shelter-gap.

I would like to conclude by saying, Mr. Chairman, that, in my opinion, it would be tragic if we failed to provide for the population of our country, this essential survival service.▲

U.S. CIVIL DEFENSE TAKES A NEW DIRECTION

by

Honorable John E. Davis, Director of Civil Defense,
Office of Civil Defence, Washington, D.C.

Thank you for inviting me to discuss the new directions for civil defense which we in the United States are exploring. I am encouraged to believe by a number of recent events that progress is being made toward new objectives which we set for our program early in 1970.

Since taking office, I have sought to change the public image of civil defense which has persisted since World War II. This old image, particularly in the eyes of our news media, almost inevitably linked the national civil defense effort with a war emergency. This idea also dominated much of the informational material issued at the national, State, and local levels of civil defense in our country.

Today, the situation is being reversed. Civil defense publications at every level of government are stressing a much broader concept of civil defense. Our civil defense professionals now emphasize that civil defense is not merely for a nuclear emergency. They point out, instead, that it is the sum total of government services which must be ready to protect the lives of our citizens when disaster of any kind threatens or strikes.

In so doing, they are stressing the fundamental meaning of the term, "civil defense." It is not simply a wartime function of government; rather it is government in its humanitarian aspect—and reflects the concern elected officials must have about the safety and well-being of the whole population.

As I have said, a number of recent events have demonstrated that the new trend in civil defense is getting more widespread attention.

Public opinion in the United States today manifests a deep concern among our people about preventing disaster or ameliorating the effects of disaster. There is mounting public interest in governmental measures which prevent disaster or aid its victims.

In response to this concern, our Congress has been closely studying the matter of more effective Federal disaster assistance for our States and communities.

For example, the congressional committee which approved our own budget this year was a newly appointed one. Its members were able to take a fresh look at our program in the light of today's needs; and they expressed concern about whether the full potential of civil defense skills, equipment, personnel, and facilities was being recognized for its value in peacetime as well as in nuclear emergencies.

Other members of Congress are now beginning to question whether civil defense in the United States gets sufficient priority to keep pace with the comprehensive program of the Soviet Union. In this context, the House Armed Services Committee of the House of Representatives has established a new sub-committee on civil defense, and has expressed the intention of holding hearings in the near future on the status and direction of our program.

Most significant is the fact *that for the first time in many years, our budget request for shelter, warning, and financial-assistance programs has been granted by Congress in its entirety**. This, I believe, reflects the intention of the subcommittee to prevent further deterioration of some of our systems which has set in due to budget limitations of previous years.

Very recently, a major advance was made toward our new objectives with the start of construction on our

Decision Information Distribution System—called "DIDS." We consider DIDS a landmark for our new-directions policy because it combines major guidelines we follow in the redirection effort. (See EMO Digest June-July 1971)

DIDS will increase the speed and reliability with which we alert our State and local governments and the population to danger; and the system will fill an *essential peacetime need for warning of natural disaster, as well as the requirement for an attack warning**.

I will skim over the technical details by saying that DIDS will use 10 low-frequency radio transmitters, so located to permit nationwide exchange of emergency warnings, messages, and information among various units of government.

In August of this year, we added additional capability to our Federal system with completion of an underground, protected Federal Regional Center for the Region 2 Office of Civil Defense at Olney, Maryland. This is the sixth facility of its kind to be completed or which is in the construction stage.

Another major objective of our redirection effort is to introduce civil defense as a standard course in the curricula of our schools. Such a course can effectively arm our children with an overall view of the environment and its hazards. This course can be broad enough to include our nuclear defense mission as well as civil defense measures relevant for everyday safety and well-being.

We feel it is just as important to acquaint our youth with the facts of nuclear weapons effects as with instructions that can save their lives in a tornado or hurricane emergency. Also, complete understanding of the effects of nuclear war can guarantee peaceful solutions to international problems far more effectively than ignorance of the forces we are dealing with.

Significant progress is being made in this direction, as the State of Alabama will institute at the first of the year a required civil defense course which will eventually be taught to all 13 to 15 year old students in that State.

This summer we directly involved a large number of American youths in our national fallout shelter program. We hired a number of college-level engineering and architecture students to assist in our shelter surveys. I was deeply impressed by their enthusiasm and their understanding of the need for protection of our population against the possibility of nuclear war.

Improvement of the emergency operations capability on the part of local government is another major element in our redirection effort.

To accomplish this, we are making a more selective approach in our assistance to local governments. A major thrust in this direction will be specialized training for selected local civil defense directors.

Also, in cooperation with our universities and colleges, we have sponsored simulated emergency exercises in which public officials assume their emergency roles and employ principles of civil defense operations in an imaginary crisis.

These exercises have succeeded in clearly demonstrating the value of civil defense in the community and have generated executive actions to improve emergency capabilities.

To sum up, in adopting a broader concept for civil defense in the United States, we have reversed a dictum which dominated our program in the fifties and sixties. We used to say to our communities: "If you are prepared for nuclear war, you will be prepared for any *other catastrophe that might arise." Today we are saying the opposite: "If you are prepared for* **any** *major disaster, you have taken a long step toward preparedness for a nuclear emergency*."*

All this does not downgrade the effort we are applying to nuclear preparedness. We are continuing our fallout shelter surveys, and our efforts to make architects and builders conscious of the shelter requirement. Also, in contrast with our other assistance programs, OCD pays the full cost for preparing and distributing shelter-use plans in American communities.

We do not believe that nuclear war is inevitable. The SALT talks with the Soviet Union, President Nixon's initiative toward establishing broader relations with mainland China, and other negotiations are all helping reduce international tensions.

We *do* believe, however, that our Nation still needs the survival insurance offered by effective civil preparedness.

It is a source of great personal satisfaction to me and to all of us in the U.S. civil defense effort when we can see such preparedness resulting in everyday benefits for our citizens, as well as providing the chance for survival in event of attack.▲

*Editor's italics.

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MINISTER OF NATIONAL DEFENCE

CANADA

MINISTRE DE LA DÉFENSE NATIONALE

Ottawa, Ont.
January 1972.

Mr. C.R. Patterson,
National Coordinator,
Civil Emergency Measures,
Canada Emergency Measures Organization,
Ottawa.

Dear Mr. Patterson:

May I take this opportunity to extend to EMO National Digest readers and contributors, provincial, municipal and international civil emergency planners and personnel of Canada Emergency Measures Organization my sincere best wishes for happiness and success in the New Year.

Donald S. Macdonald

Donald S. Macdonald,
Minister.

ANTI-BOREDOM